

Software Engineering Fundamentals - Tutorial

Class and object diagrams

Q1

Draw a class diagram for the following problems. Include any appropriate attributes, and name the associations.

a)

A hotel has an address and multiple rooms that can be rented.

Draw an object diagram for small hotel with 3 rooms. One is currently rented to Fred, another to Mary. The third remains unoccupied.

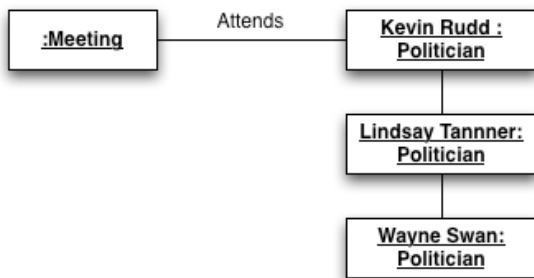
Draw the associated class diagram.

Q2 Class diagram checks

Consider the following object and class diagrams and state if they are correct, and if not, where they are wrong.

a)

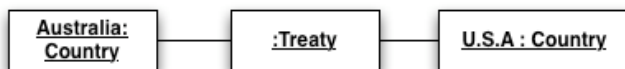
A meeting of politicians takes place in Canberra



b)

Bilateral trade agreements exist between two countries.

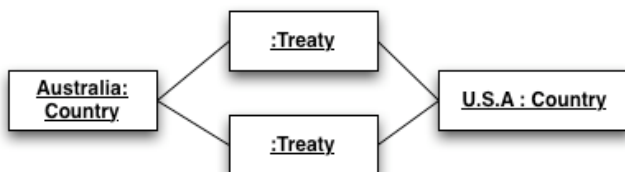
i)



ii)



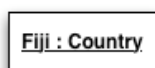
iii)



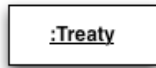
iv)



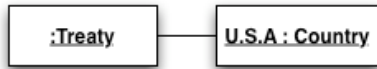
v)



vi)



vii)



viii)

Draw a class diagram for this problem.

Q2 Use cases, object and class diagrams.

Galaxy Zoo (<http://www.galaxyzoo.org/>) is a project that organises volunteers to classify galaxies by examining photos from the Sloan Digital Sky Survey. Once participants have an account they can analyse images of galaxies to determine if they are spiral or elliptical (the maximum by one person is over 50,000 objects!).

We'll assume that there is cross checking of the images, and only after they have been classified as one type or another by three participants are they accepted.

a)

What use cases can you identify?

b)

Create object diagrams of...

- An image that has been classified by two people as spiral
- A user that hasn't classified any images yet.
- An image that hasn't been classified by anyone.
- A user that has classified two images, one as spiral and one as elliptical
- Three users that have classified a number of the same images.

c)

Create a class diagram for your problem.